

3¹² Decoder (10+2 - Corresponds to HT6010/HT6012)

D/N: HA0064E

Introduction

This application shows how to use the HT48R50A-1 to simulate the HT6032 3¹² decoder function to decode the 10 Address bits and 2 Data bits for the HT6010/HT6012.

Function and Theory

The 3¹² Decoder function can decode the 10 Address bits and 2 Data bits each of which can be set individually to either "1" and "0".

MCU: HT48R50A-1

Method: uses the HT6032 decoding process (see the HT6032 datasheet) to check the corresponding signal width to judge if the signal is either a "0", "1" or "floating". The corresponding width can decode skewed signals, the tolerance of which can be adjusted by MAXDURATION in the program.

Pin Function:

PB0~PB7: Address input pins

PC0~PC1: Address input pins

PD2~PD3: Data output pins

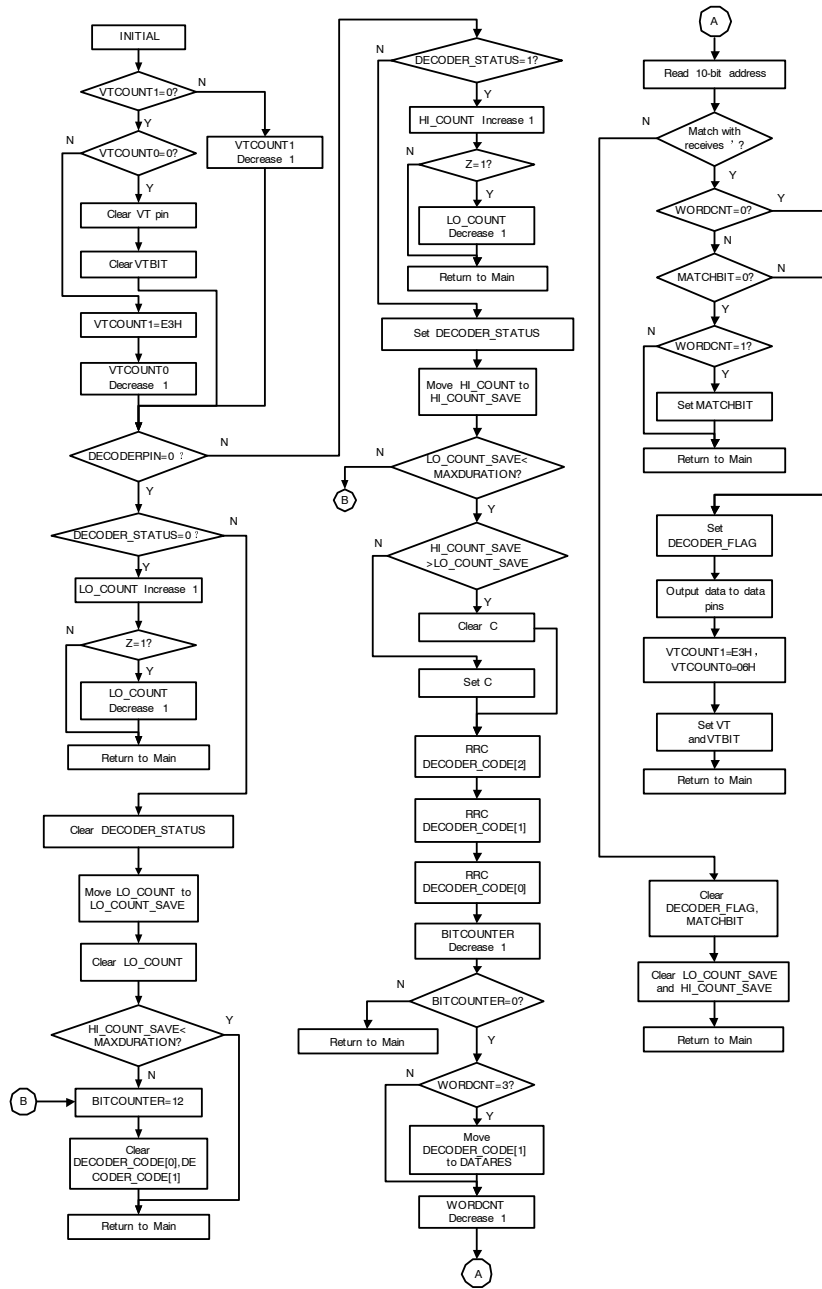
PA5: Serial data input pin

PD4: Valid transmission pin

Software IP: 3¹²_10+2 Decoder Subroutine Usage Description Table

IP Name (Label)	System Resources	Functional Description
3 ¹² _10+2D	Function	Decode 12 bits of information from the 3 ¹² Encoder
	MCU	HT48R50A-1
	ROM	213
	RAM	15 Bytes: "HI_COUNT"、"LO_COUNT"、 "HI_COUNT_SAVE"、 "LO_COUNT_SAVE"、"BITCOUNTER"、 "DATARES"、"ADD_RES2"、 "ADD_RES1"、"ADD_RES0"、 "WORDCNT"、"VTCOUNT1"、 "VTCOUNT0"、"DECODER_CODE[2]"、 "DECODER_CODE[1]"、 "DECODER_CODE[0]" 5 Bits: "DECODER_EN"、"DECODER_FLAG"、 "DECODER_STATUS"、"MATCHBIT"、 "VTBIT"
	Stack	1 level used
	Subroutine/Macro	Subroutine
	I/O lines	14 I/O lines PB0~PB7: input pins(I/O), non-pull high PC0~PC1: input pins(I/O), non-pull high PD2~PD4: output pin(I/O), pull high PA5: input pin(I/O), pull high
	f _{sys}	8MHz RC
	Other MCU resources	TMR INTERRUPT
	User interface	Set address pins CALL DECODER_INITIAL

Program Flowchart



Program Description

Refer to the ASM file that contains one main program code file for users to follow and add their own programs. Users need to add the INCLUDE 10+2.ASM and MAIN.ASM files to their project. The ASM text file include the DEFINE.ASM, INTERRUPT.ASM, STDUC.ASM, MEMORY.ASM and MACRO.ASM files that should be added in the project.